Gearing up for Ultra-High Speed Networks

The impact of G.fast / FTTdp

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The impact of G.fast & FTTdp

G.fast basics & deployment | the impact & the big picture | interop & certification
G.Fast basics

G.fast is a digital subscriber line protocol standard for local loops shorter than 500m, with performance targets between 150 Mbit/s and 1 gbps, depending on loop length.

Distance v Bandwidth
Actual speeds are dependent on physical infrastructure characteristics.

* Speeds of more than 2000 mbps have been achieved.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Bandwidth Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;100 m</td>
<td>500-1000 mbps*</td>
</tr>
<tr>
<td>200 m</td>
<td>300-500 mbps</td>
</tr>
<tr>
<td>300 m</td>
<td>200-300 mbps</td>
</tr>
<tr>
<td>500m</td>
<td>100-200 mbps</td>
</tr>
<tr>
<td>500m +</td>
<td>Up to 100 mbps</td>
</tr>
</tbody>
</table>

The various G.fast industry definitions are shown on the poster (more later)
G. fast deployment alternatives

- **FTTdp**: The distribution point units (DPU) is in a street cabinet where power is available.
- **FTTdp**: On a building or street pole where power may or not be available for the DPU. Where no power is available G.fast supports reverse power feeds from a nearby connected building.
- **G.fast is not solely FTTdp**: As Fiber to the Building (FTTB) in a multi-dwelling or multi-tenant location where existing wiring may be used without disruption.
One FTTdp architecture benefit is that the DPU equipment typically serves 8-20 lines, making it small enough to place on a pole, in a hand-hole or in a small pedestal.
G.fast Impacts the largest area of the wired market

• G.fast brings fiber and gigabit-class service delivery over existing copper to the largest sector of the market worldwide
  – G.fast installation requires no premises disruption/visit
• Rejuvenates residential broadband and opens new business markets
  – Enables the opportunity to run services/applications at a residence or small offices that are normally associated with a fiber-connected metro office
  – Enables high-end consumer video and gaming experiences
• Takes an important step toward ubiquitous fiber deployment
• Existing phone wiring now stands alongside Ethernet and Wi-Fi as an equal, but non-intrusive, player in the gigabit home/multi-dwelling location
Impact: The Big Broadband Picture

Remote Provider Domains

Mobile/Wireline Converged Backhaul

Broadband Assured IP Service

Content Delivery Network

Best Efforts Internet

Residential/Homeworker

Ethernet copper Phone wiring

Data Center Interconnect

Internet

Data Center

Cloud CO / Datacenter

Street Cabinet

DPU

Gateway

Residential Users, Home Workers, Business, Industrial Users

Professional Building

Multi-Dwelling

Professional Building

Data Center

Residential Users, Home Workers, Business, Industrial Users

Internet

Best Efforts Internet

Ethernet copper Phone wiring

Residential/Homeworker

Internet
Broadband Forum executing the Broadband 20/20 Vision

- Focus on new service revenues
- Leverage 350m installations of TR-069
- Ultrafast broadband/G.fast Certification
- New Software models and specs leverage G.fast, SDN, NFV, IoT, 4/5G
- User Services Platform
- Cloud CO
- Performance Aware Broadband Services

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150 service provider, vendor member companies | More than 25 years of
Broadband Forum work & deliverables

**BBF Work**
- VDSL2 and Bonding
- Vectored VDSL2
- G.fast, FTTdp, Fiber PON certification
- Software data models

**G.Fast deliverables**
- ID-337 G.fast certification test plan
- WT-285 Copper Transmission Models for Testing above 30 MHz
- WT-338 G.fast Reverse Power Feeding Test Plan
- OD-335 G.fast plugfest test plan

**FTTdp deliverables**
- WT-301i2 FTTdp requirements, adding PMA, DPU discovery and reverse power feeding
- TR-355 - DPU YANG management model (7 items)
- WT-318 FTTdp management architecture
- TR-317 FTTdp vector of profiles
- OD-369 DPU-PMA Interoperability test plan
BBF G.fast Testing and Certification
BBF Interoperability and Certification Program

Accelerating implementation, deployment and business

Interoperability plug-fests

- Provide an invaluable accelerator to product and service introduction
- Leverages vast experience and expertise
- Open sourcing greatly increases importance of interoperability
- Testing performed at BBF approved test lab

• Certification

- Avoids extensive provider testing before purchase
- Significantly reduces costs and accelerates time to revenue for all stakeholders
- Creates a trusted industry standard for implementation and high customer satisfaction

• Designation of G.fast Certification

- The Certification for G.fast has been designated BBF.337
Key G.fast Certification Deliverables

• Ensure multi-chipset interoperability between solutions
  – Certified devices must interoperability with at least 3 distinct chipsets

• Verification of key features within G.fast
  – RMC operation {bit-swap, FRA, SRA}, Test Modes, PSD control

• Basic assurance of performance
  – Required bit-rate vs. distance
  – Required operation in noisy conditions
Good Timing! New BBF wall chart on booth 2110.8

New G.fast wall chart
– ITU-T, ETSI & BBF standards
– Certification
– Interop
– G.fast facts

or at
– broadband-forum.org/gfast

Thank you for your interest

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This presentation http://tinyurl.com/bbfitu16